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ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE ENDOTHELIAL LINING OF THE ANTERIOR CHAMBER IN HEALTH AND DISEASE.

[With Micro-Photographs.]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[CONTINUED FROM FEBRUARY NUMBER.]

In the foregoing we have seen, that the endothelium of Descemet's membrane is, to say the least, easily thrown into a state of activity and proliferation into the anterior chamber.

I have at a former occasion depicted a large deposit of, what I considered to be, proliferated endothelial cells on Descemet's membrane, but the unsatisfactory staining methods of the othe older specimens in my collection, do not allow of a photographic reproduction, and I can therefore only refer to the previous drawing. (Lectures on the Human Eye, p. 18).

Aside from the forms of proliferation, mentioned thus far in this paper, I have frequently seen the endothelial cells in the neighborhood of corneal wounds or ulcerative processes taking on an elongated shape and becoming gradually more and more spindle-shaped. This, in itself, it seems to me, points to the possibility of a new formation of connective tissue from these cells. Although this is doubted by some, I am thor-

oughly convinced of such a possibility. In a number of instances, I have, indeed seen the cells of Descemet's endothelium pass over into a newformed, distinctly but irregularly lamellated tissue, lying inwards of this membrane. This is, particularly, found in connection with anterior synechiæ of different tissues. Figure 1 shows such a newformation of lamellated connective tissue to both sides of an anterior synechia of the iris. It seems that this tissue is altogether derived from the endothelium of Descemet's membrane, although the endothelium covering the anterior surface of the iris may, perhaps, have participated in this formation. I have similar specimens in which the lens is held in a corneal scar and where such a newformed connective tissue ring, also, is seen around the point of adhesion, lying on Descemet's membrane. I have, furthermore, a number of specimens in which the vitreous body is adherent to a corneal scar and in which Descemet's endothelium can be traced for quite a distance backward on the cone formed by the adherent vitreous body, while just around the point of contact between Descemet and vitreous body a similar newformed ring of lamellated new connective tissue has been formed.

While in these cases, there remains a doubt, as to whether the endothelial lining alone, or perhaps at all, was concerned in the newformation of connective tissue, and while it is possible that some exudative material may have become organized in this place and Descemet's endothelium may simply have grown over this new surface, I think that Figure 2 must remove all doubts as to the possibility of a newformation of lamellated connective tissue originating from the endothelial cells covering Descemet's membrane.

In this case, in the first place a newformation of connective tissue on the inner surface of Descemet's membrane of very considerable extent has taken place. It reaches from the iris angle where it is very thick, forward to almost the center of an otherwise unaltered cornea becoming gradually thinner on its way. In the second place, not only does this lamellated tissue lie upon Descemet's membrane, but towards the anterior chamber it, in turn, is covered with another, evidently a newly formed, secondary membrane of Descemet, and this again is covered with endothelium.

In Figure 3, a part of this new tissue and secondary

Descemet's membrane are shown under a higher magnifying power, from near the junction of the two vitreous membranes.

From what, through Leber and others, we know concerning the healing of a small wound in the lens-capsule and from a number of similar observations of my own, I think, that this case shows, that Descemet's endothelium can not only form lamellated connective tissue, similar to the corneal tissue, but that it can form and, perhaps, originally forms the vitreous membrane which we call that of Descemet.

In looking through the literature on this subject I have found a number of references to the change of these endothelial cells into spindle-shaped ones, as well as of the formation of giant cells.

Leber in his exhaustive treatise On the Origin of Inflammation (Ensthehung der Entzuendung), mentions the formation of giant-cells and goes on to say (p. 494): "More frequently new tissue was formed on the posterior surface of the cornea and on the anterior surface of the iris consisting of superimposed connective tissue cells which were flat, polygonal or spindle shaped and had long offsets. * * * Further on, thin layers of intercellular substance appeared between the cells, and gradually grew thicker while the cells disappeared. * * *

* * * "Many years ago Stricker observed processes of contractibility and cell-division in the endothelium of Descemet's membrane in cases of keratitis and the same faculty is acknowledged by all investigators to be possessed by new-formed connective-tissue and granulation cells; even Ziegler, contrary to his former belief, has more recently given this as his opinion. The question now is only, whether or not under certain circumstances lasting cell-products may take their origin from leukocytes. While most authors deny this, J. Arnold leaves it an open question. * * *

* * * "Where there was an endothelial proliferation in the anterior chamber, the transition from the normal to the proliferated endothelium could be readily recognized in surface views and transverse sections. * * *

* * * "In the latter case a distinct ring of proliferation of the endothelial cells of Descemet's membrane appeared at a short distance from the foreign substance." * * * etc.

In the first number of Vol. XLII, *v. Graefe's Archives*,

which I have just received there is a most interesting paper by W. Uhthoff and Th. Axenfeld, entitled "Contributions to the Pathological Anatomy and Bacteriology of Purulent Keratitis in Man," in which changes very similar to those I have here described are mentioned concerning the endothelium of Descemet's membrane.

In a résumé of what they have found anatomically these authors say:

"The endothelium of Descemet's membrane was often loosened and absent, even when the membrane itself was, as yet, well preserved. * * * In places the loosened endothelia lay, like giant-cells in the anterior chamber in the hypopyon, in others a layer of leukocytes had crept in between Descemet's membrane and the endothelium, and lifted the latter off. Sometimes a distinct proliferation of the endothelium is visible, and this was especially found in cases of inoculation-keratitis in the rabbit, where larger wart-like newformations grew on the posterior surface of Descemet's membrane.

"The endothelial cells themselves showed often pathological conditions, as a breaking down, a swelling, or their nucleus could not be stained well, etc. A very extraordinary condition was found in Case V, where in one place the endothelial cells were shed and the single cells appeared very much enlarged, had long offsets, were star-shaped, had a large nucleus, etc., so that at first they appeared like enlarged corneal corpuscles, yet in proper specimens it was very clear that these cells took their origin directly from the endothelium of Descemet's membrane. They looked exactly like the proliferating endothelial cells as they are found, for instance, in the organization of thrombi in blood-vessels and which have been called formative cells by Ziegler (*Lehrb. d. allg. Path.*) who depicts them."

To these observations I want to add, that neither in these special investigations into the life-habits of the endothelial lining of Descemet's membrane, nor at any other time during innumerable examinations of pathological eyes, have I come across any specimen which would show, or even tend to show, that pus cells ever do or can pass through Descemet's membrane into the anterior chamber; their only way lies through the meshes of the ligamentum pectinatum.

II.—The Ligamentum Pectinatum and Its Endothelium.

Near the locality which is generally called the corneo-scleral margin, Descemet's membrane as such comes to an end. From there on backwards to the root of the iris the inner surface of the corneo-scleral tissue is covered by an intricate network of fibres of very much the same vitreous appearance as Descemet's membrane. Figure 4 shows a portion of this network detached, after having first removed the ciliary body and iris from the eye, by grasping the loose tissue with a forceps and pulling it towards the centre of the cornea.

I do not think, although others do, that there is any doubt, that Descemet's membrane at its periphery splits up into the fibres which form the ligamentum pectinatum and in Figure 5 this seems to be shown pretty clearly.

Attached to these fibres are a large number of flat endothelial cells, with preference at the angles made where the fibres join each other. These endothelial cells appear flat, like the cells of Descemet's endothelium and a little thicker in the centre from the presence of their round or oval nucleus. This shape varies much, but is usually roundish or oval; some of them have small offsets.

These cells do not, as far as I can see, form a continual covering all over the fibres, but lie mostly apart from each other.

Outwards from the ligamentum pectinatum lies the tendon of the ciliary muscle and its insertion into the corneo-scleral tissue. Posteriorly the fibres of the ligamentum pectinatum end in the root of the iris. This, of course, well-known fact, is well illustrated by Figure 6.

[TO BE CONTINUED.]

THE MIRROR FOR SKIASCOPY.

BY EDWARD JACKSON, A.M., M.D., DENVER, COLO.,

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC; SURGEON TO WILL'S EYE HOSPITAL, AND SPECIAL LECTURER ON PHYSIOLOGICAL OPTICS IN THE UNIVERSITY OF COLORADO.

The first essential for the mirror for skiascopy is a goop sight-hole. A good sight-hole is one which is as small as will

allow the movement of light and shade in the patient's pupil to be readily watched through it; and which is free from reflections.

The sight-hole should be small because it interrupts the reflection of light from the mirror into the patient's eye. When the point of reversal is brought close to the surgeon's eye by use of the appropriate lens, or the surgeon's eye is moved close to the point of reversal, the patient's eye being focussed for that distance, forms on its retina an image of the mirror before the surgeon's eye. In this image, formed on the patient's retina, the sight-hole of the mirror is necessarily represented by a small dark circle. In an eye free from aberration, with the sight hole exactly at the point of reversal this circle would be entirely dark. But as all eyes present in the periphery of the dilated pupil some aberration and irregular astigmatism, the unfocussed light entering through this part of the pupil gives a feeble illumination to this comparatively dark circle. The larger the sight-hole, the larger this circle, and the feebler the illumination of its centre; and the smaller the sight-hole the better the illumination.

As the point of reversal is approached the part of the patient's retina visible in the pupil grows smaller, until at the point of reversal a single point of the retina seems to occupy the whole of the pupil (see writer's monograph on Skiascopy, Chapter II). This point is necessarily within the circle of feeble illumination on the patient's retina. On this account the light area to be watched in the pupil appears comparatively dim when viewed from the point of reversal. The aim must always be to make it as bright here as possible, hence the need for a small sight-hole.

Were the sight-hole as large as the source of light, the illumination would be liable, when the reflection came from the central part of the mirror, to suddenly disappear from the patient's pupil in a very puzzling and annoying way. But the source of light should be as small as practicable to bring out most distinctly the characteristic appearances of astigmatism, or the differences of movement in different parts of the pupil. Here is another reason for a small sight-hole.

Again, the rays emerging from the patient's eye are focussed at the point of reversal. When the surgeon's eye approaches this point, these rays can no longer be focussed on

the surgeon's retina, but form thereon circles of diffusion, which cause the light area at its margin to shade off very gradually into the shadow, and make it difficult to recognize the direction and character of the movement of light and shadow exhibited in the patient's pupil. The size of these circles of diffusion is directly proportioned to the size of the sight-hole. Hence the smaller the sight-hole the more definite and readily distinguishable the movement in the pupil from near the point of reversal.

The limit below which the sight-hole can not be diminished has already been indicated, as that just allowing the surgeon to watch the movement of light and shadow. Exactly what this may be will vary with the conditions under which the mirror is used. The more complete the surrounding darkness, the easier it is to see the light area on the face and the light area in the pupil; and the smaller the sight-hole may be. The writer has used with most satisfaction a sight-hole two millimeters in diameter. A still smaller one may under favorable conditions be found satisfactory by the expert. But one not very familiar with the test will probably do better with a somewhat larger sight-hole.

Reflections from the margin of the sight-hole are bad in any ophthalmoscopic mirror. They cause circles of diffusion on the retina so large as to fill the whole field of observation with a luminous haze, which renders more difficult the seeing of any object. In skiascopy this is particularly detrimental because the things to be watched are at best somewhat difficult to see; and the presence of such a haze necessitates increased size of the sight-hole. In purchasing a mirror the freedom of the sight-hole from reflections is one of the principal things to be tested. Its importance is not sufficiently appreciated by those who supply such instruments, and the best are in this respect, short of the ideal.

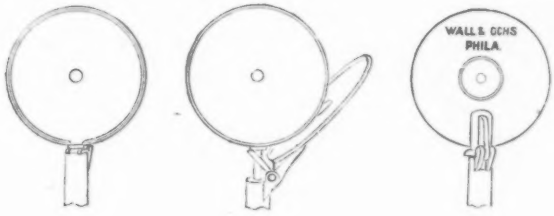
The *size of the mirror* for skiascopy is a matter of less importance, yet one that somewhat influences the convenience of using it. The wider the mirror the wider the excursion that the light area can be caused to make on the patient's retina. When the retina is comparatively little magnified, when the surgeons' eye is far (measured in dioptres) from the point of reversal, as with high uncorrected ametropia, the wide excursion of the light area may be necessary to render clear what

the movement seen in the pupil really is. To meet such requirements, a large mirror is necessary. In high astigmatism the mirror, even when placed at the point of reversal for one meridian, is considerably removed from the point of reversal of the other principal meridian, so that some considerable width of mirror is necessary to bring out movement in the latter meridian. The wide mirror will serve under these conditions where a small mirror would be useless.

Close to the point of reversal, however, the magnification of the retina is such that only a very small part of it occupies the whole pupil, and this very small portion of the retina can only be illuminated by light reflected from a very small part of the mirror immediately around the sight-hole. When the reflection falls upon the patient's eye from some other part of the mirror, the pupil under these conditions appears dark. Hence with a large mirror throwing a large area of reflected light upon the face it becomes necessary to keep a particular part of the area upon the eye, and this is the more difficult the larger the area. For controlling the movement of the light areas when working near the point of reversal a small mirror is more convenient. This becomes of great importance when the source of light is brought close to the mirror, as it must be for accurate testing with the plane mirror. As the great part of the work with the shadow-test is done near the point of reversal the convenience of working there must be considered.

In seeking the greatest convenience at the point of reversal we must not discard the wide mirror, but may well cover the part of it that is for the time useless. Two mirrors, a wide and a narrow one could be employed; but as even the narrow one must have a back wide enough to exclude side light from the surgeon's eye, the single mirror with a cover is simpler. A mirror of this kind 38 mm. in diameter, with a cover that excludes all but the space, 10 mm. in diameter, around the sight-hole, has been chosen. Such a mirror with a very convenient arrangement for removing the cover to the back of the instrument and retaining it entirely out of the way, is shown in the accompanying figures. It is made by Wall & Ochs, of Philadelphia. In using it, if the refraction of the eye has been previously approximated, as by the ophthalmoscopic examination, and the proper lens placed before the eye, and if the astigmatism

is not high, the cover is kept before the mirror and only the central part of the latter employed. When the error of refraction is of high and unknown degree, or in the determination of the meridians of high astigmatism, the cover is turned back out of the way, and the whole width of the mirror is used.



The sight-hole of the mirror may either be cut through the glass, or merely scraped in the silvering. In the former case there will always be some reflex from the margin of the sight-hole; and the sight-hole only through the silvering is better so long as the glass opposite it is kept perfectly clean. But particles of dust will lodge on this glass, and it is rather difficult to remove them all from the margin of the sight-hole, without encroaching on the margin of the silvering and so enlarging the sight-hole. With the glass removed at the sight-hole this difficulty is prevented.

What has been said applies to either the plane or the concave mirror. When one has at command the proper source of light, a flame covered by an opaque shade with a small aperture, the plane mirror is to be preferred. But when one is compelled to use an unshaded flame that must be placed back of the patient, the concave mirror will commonly be found more serviceable.

It should be borne in mind that one can use a concave mirror, as a plane mirror is used, and that it will act exactly as plane mirror, by bringing the original source of light within the principal focal distance of the mirror. The immediate source will then be a virtual image of the original source back of the mirror from which rays diverge, as they do from the virtual image back of the plane mirror.

A NEW FORM OF PERIMETRIC LENSES.[1]

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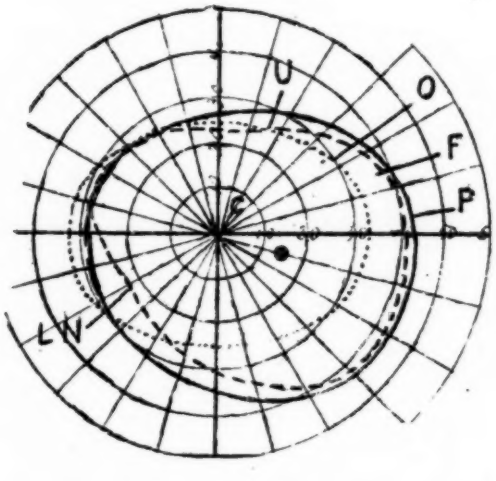
The accompanying drawing shows:

O, The outline of the spectacle lense in ordinary use.

F, The normal form field of vision, reduced one half from the regular perimetric chart.



U, The indentation in the upper part of the field.

I, N, The indentation in the lower nasal part of the field.

P. The outline of the perimetric lens, which will be seen to conform in full to the normal form field of vision and at the same time an addition is made at U for the purpose of symmetry, and at L N, for symmetry and also for use when the eyes converge at near work. In fact the perimetric lens here shown takes in the full normal field of vision, which gives it its name and shape, and at the same time prompts two reasons for its recommendation, namely:

FIRST, and most important, it gives to the eye that lens

[1]Shown and described by invitation to the Section in Ophthalmology of the College of Physicians of Philadelphia, March 17, 1896.

which is consistent with the normal form field of vision, and

SECOND, the edge of the lens is sufficiently removed not to be noticed to any extent by the eye when fixed straight ahead.

The seeing of the edge or edges of the lens being a subject of complaint by many patients who are now wearing the oval lens (see O, in drawing). Point C, in the drawing, is the center of the ordinary lens, and is made to correspond to the center for the perimetric lens (P), and the point of fixation in the field (F). A careful study of this drawing demonstrates the merits of the perimetric lens (P) over the ordinary (O). At first thought, several objections to the perimetric lens may suggest themselves.

1. The increase in weight. Of course much of this will depend upon the optician, as to whether he turn out a thick or thin lens. If due care is exercised in this respect, the increased weight need not, on the average, exceed twenty-five or thirty grains.

2. The cost of manufacture. I am assured by Messrs. Bonschur & Holmes, The Fox Optical Co. and Messrs. Wall & Ochs, who are now making these lenses, that the price is the same as for other lenses.

3. The shape and size, especially the latter, is not going to recommend the perimetric lense to a certain class who, in spite of the advice of the oculist, insist upon having a small lens "that will not show." The perimetric lens does look large off the face, whereas, when on the face it attracts but little if any attention.

4. Cataract, as also high myopic corrections do not make up well in perimetric lenses on account of their necessary thickness and weight.

5. Spherical perimetric lenses are not so easy of manufacture as the cylinder or sphero-cylinder by reason of the fact that spheres come already cut, while the cylinders are in the square.

6. The patient with a long interpupillary distance (the myopic) can not get the same amount of comfort from the perimetric lenses as the one with an average of 62 or 64 m.m. Statistics[2] show that 63% of all eyes have simple or compound

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[2]Annals D'Oculistique, July, 1895, page, 72.

hyperopic astigmatism, and it is in these cases especially that perimetric lenses are recommended. Other objections that may suggest themselves, as in the case of long eyelashes, etc., are also found in the use of the ordinary spectacle lenses, and are, therefore, not points for consideration in this description.

Perimetric lenses are to conform to the sizes and numbers of the present styles of lenses.

Bifocals are made with decided advantage; as a larger segment is used for the near or working distance than in the ordinary lens.

Perimetric lenses may be framed, but the frameless are recommended, for the same reasons as in using the ordinary.

The toric perimetric lens is really the perfection lens in every particular, but its cost will exclude it from every-day prescription.

In conclusion, the writer would add, that for the past four weeks he has been wearing with unusual satisfaction the form and style of perimetric lenses here described, and the cases in which he has had opportunity to order them, have given like comfort and pleasure.

DR. F. E. D'OENCH has been elected one of the surgeons to the New York Ophthalmic and Aural Institute.

DR. RICHMOND LENNOX, one of the surgeons of the Brooklyn Eye and Ear Hospital died in Brooklyn.

DR. C. WALDHAUER, Mitau, celebrated the fiftieth anniversary of his graduation. We congratulate. Unfortunately, the successful oculist, is himself now stricken with blindness.

THE *Annals of Ophthalmology and Otology* will in future be edited by Dr. T. M. Hardy, of Chicago, who will have charge of the department of Otology and Laryngology. The Ophthalmological department will be under the editorial management of Dr. C. A. Wood. We heartily congratulate them and wish them success.

CLINICAL MEMORANDA.

A CASE OF RHABDOMYOMA OF THE EYELID.

BY ADOLF ALT, M.D., ST. LOUIS, MO.

Our knowledge of the different forms of new growths occurring in the eyelids has been considerably enlarged within the last decade. The following case is, as far as I know and can find out, a totally new observation.

On January 2, 1896, a young man, about 17 years old, presented himself at my clinic at the Beaumont Hospital Medical College. Dr. Jennings, my assistant, brought the patient to me for operation before the class, with the diagnosis of a large chalazion.

I found the left lower lid swollen, more particularly near the outer canthus, where the swelling was more prominent and harder. The inner side of the lid did not show the usual signs of a chalazion. The patient, and afterwards his mother, stated that they had noticed the lid becoming thicker for six weeks previously. There had at no time been any pain, neither spontaneously nor on pressure.

After having made the incision through the skin and palpebral muscle down to the surface of the tumor, I found that it extended all across the lid, tapering off towards the inner canthus. There was considerable bleeding after its removal.

The tumor had a whitish covering and felt elastic, yet harder than a chalazion usually does. These peculiarities prompted me to examine it histologically.

The bulk of the tumor consists of striated muscular tissue in all stages of its development. In some places there are bundles of old striated muscular fibres, mostly cut transversely which from the direction in which my sections are made, proves, that even these old muscular fibres ore not fibres of the orbicularis palpebræ. Around these, going in all directions and meeting each other at all angles, and often running

concentrically around a blood vessel, are innumerable bundles and tracks of younger muscular fibres, many of which are still single long spindles with a larger or smaller oval nucleus, and just forming their sarcolemma. Fig. 7 (see Plates), is a photograph of one of these parts where the younger and youngest fibres predominate. Numerous round cells lie between the muscular fibres.

Embedded in this muscular tissue are a large number of foci of round cells, like small abscesses. These lie particularly in the neighborhood of larger bloodvessels.

There is not a trace of glandular tissue, nor did the tumor penetrate deeply into the tarsal tissue. The blood-vessels are either filled with blood and distended, or obliterated by proliferation of their endothelium. On a great many of the smallest ones the muscular coat is also hypertrophied.

At first sight the abscess-like accumulations of round cells gave the impression of a sarcomatous growth; yet, on farther examination they can be considered only as aggregations of leukocytes. The character of the tumor I think, therefore, is a benign one. There is so far, at least, no sign of a recurrence, which, of course, is not proving anything.

EDITORIAL.

A BILL TO CREATE LAY OPHTHALMOLOGISTS.

We find the following in the *New York Medical Record:* The following circular was issued by the Committee on Legislation of the Medical Society of the State of New York:

"*To the Medical Profession of the State of New York:*

"A bill has been introduced in the Assembly incorporating the Optical Society of the State of New York, the passage of which would be a serious menace to the public at large and an infringement on the laws governing medical practice.

"This bill gives to the New York Optical Society, which is not composed of medical men, the exclusive right to issue certificates to opticians, charging for each the sum of $25.00; certificates which it can revoke at its pleasure. It also has the power to license 'refracting opticians,' thus putting into hands

of incompetent people the right to fit glasses for various troubles of the eyes, privileges which should be only in the hands of competent physicians.

"A bill was hurried through the Legislature during the last session which conferred on chiropodists medical rights, the possession of which, in the hands of the ignorant, can not fail to work harm to the community. It is our duty as physicians and guardians of the public health to keep a watch on these efforts to evade the laws governing medical practice and to enter at once a vigorous protest.

"The members of the Legislature are in nearly every instance willing to be guided in these matters by the expressed desires of the medical profession; it is therefore requested that every physician throughout the State write to the senator and assemblyman representing his district, protesting against this bill, and requesting the representative to use his influence to defeat it.

"The bill is entitled 'An Act to Incorporate the Optical Society of the State of New York,' etc., and is known as Assembly Bill No. *727*, which number, please, use in writing to your representative.

"A. WALTER SUTTER, M.D.,
"MAURICE J. LEWI, M D.,
"J. M. WINFIELD, M.D.,
"Committee on Legislation."

We trust that every practitioner in the State will do his best to defeat this unjust and outrageous measure."

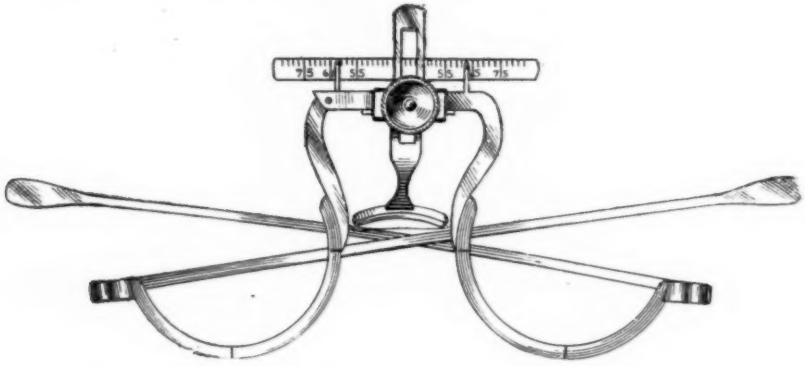
If the support of medical men from other parts of the country can help to defeat this bill, we wish to add our most emphatic protest to that of the New York medical men. We do this, although, or rather, because we are in possession of some of the inside facts concerning this bill, and although we have a high regard for its originator in his sphere of work. We can hardly perceive how such an accomplished scholar can fail to recognize his great error and to withdraw this bill, the adoption of which will work nothing but harm, aside from its direct conflict with the laws governing the study and practice of medicine.

OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,
OF ST. LOUIS, MO.

AN IMPROVED FORM OF TRIAL FRAME.

CHARLES A. OLIVER, M.D., Philadelphia, Pa., (*Annals of Ophthalmology and Otology*, October, 1895):



The advantages of this test frame over others of this kind may be enumerated as follows:

1. The extreme lightness and durability of the contrivance.

2. The concentration of the working portions in and around the central wedge.

3. The simple mechanism by which an independence of lateral movement in its two sides can be made, thus allowing correct horizontal centering and absolute gauging for each eye.

4. The great lengths and shape of its temples, by which, when properly applied to the head of the patient, the frame is securely, though lightly attached.

5. The simplicity in shape and ready method of working of the nose piece, thus permitting an easy and quick vertical adjustment of the contrivance to be made.

6. The simple, durable device by which spherical and cylindrical form of lenses as well as prisms and other optical

contrivances, such as stenopaic slits, tinted glasses, etc., can be employed to their greatest advantage.

Messrs. Reimold and Meister are now prepared to furnish samples of this instrument in its newest and best form.

A PRELIMINARY REPORT OF A PERIMETER BASED ON A NEW PRINCIPLE.

JOSEPH E. WILLETTS, M.D., Pittsburg, Pa., (*Annals of Ophthalmology and Otology*):

The objections to the present method of ascertaining defects in the visual field are, indeed, numerous. In 1892 I took the field of vision of a man with a perimeter at the Manhattan Eye and Ear Hospital for twelve consecutive mornings, at the same hour, and as near as possible under the same conditions and on comparing the results there were no two alike.

Recognizing that the unsatisfactory statements of the patient materially influence the result, that there must be an approximate allowance made in each case for the constantly varying physiognomy; and that the time and inconvenience necessary for a conscientious examination of the visual field were decided objections, I endeavored to construct, or combine a number of prisms or cones, which would transmit or refract the rays of light to that part of the retina corresponding to the degrees in the present perimetrical chart. Fixing myself in the position of the patient, I, with the prisms at hand, succeeded in deviating the stationary disc to 70° on the perimeter. To make the result correspond as nearly as possible to the present accepted ellipsoid, color and form field, as the perimeter gives it to us would be necessary to have prisms of different strengths combined in a whole. On this principle I had an octagon ground. Recognizing later that this shape would be expensive and the results inaccurate, I constructed a cone-shaped hexagon, having all prisms of the same strength. Thus a cone or cone-shaped hexagon with its sides cut at an angle of 70° 40′, made of flint glass with an index refraction of 1584, will throw six lights at the same time on the retina at the angle corresponding to 70° as taken by the perimeter.

Plates in text-books showing 55° to 60° to be the normal

or white of the superior, inferior and temporal portions of the retina are misleading, and certainly are not correct any more than the plates showing a restricted color field are. The prism I have constructed has demonstrated to my satisfaction that there is no restriction of the normal field for any color or any object. The present restriction is not due to the inability of the retina to receive impressions at its periphery, but entirely to outside influences—the physiognomy, and the crude instrument by which the field is taken. All colors are recognized with this prism at the periphery of the field, as well as inside of the color field, as at present recognized. That it is not so plainly seen at the periphery is partly due to the fact that to deflect an image to the 70° angle on the retina the rays cannot pass through the angle of minimum deviation of the prism and thus transmit a clear image of the object; but instead, a distorted one is transmitted to the retina, which confuses the patient. If it were possible to throw an image on the periphery which was not distorted it would be very distinctly seen. That this is a fact is proven by directing the visual axis to one of the false images on the periphery, which necessarily causes it to fall on the macula. If its indistinctness on the periphery were due to insensibility of the retina, it should be distinctly seen when focused on the macula, which it is not, showing that its indistinctness is due to distortion alone.

With this combination of prisms, or with the cone, which is the same principle, the field of vision and the color sense may be taken in an instant. If the 73° 40′ hexagon or the 70° 40′ cone is placed before the eye, and an incandescent light with a red globe turned on, and the patient sees six lights with the hexagon or an unbroken ring of light with the cone, it is positive evidence, after a slight rotation of the hexagon, or without rotation of the cone, that not only the field of vision is normal at the angle of 70° for all meridians, but also that the color sense for red is normal at that angle. A row of incandescent lights, green, blue yellow, or any of the complement colors, can be successively turned on, and the field and color sense for that angle established decisively in an instant. The cone, or the hexagon of prisms, which refracts at 60° can then be slipped in the trial frame, and so on down to 10°.

The advantages of the prismatic perimeter over the old one are:

1. That the field of vision can be accurately taken in an infinitely shorter space of time.

2. That the color-sense can be taken at the same time that the form field is taken.

3. That the result can be depended upon, inasmuch as it is always taken under the same light-stimulus, while under the old method one might ask: Under what conditions was this field taken? Was the light good? Was the stationary disc and the moving disc perfectly white or were they mottled and dirty, and was there anything unusual in the patients' physiognomy?

4. That it is a new confusion test for simulated blindness.

5. That it is a new muscle balance test, especially of the oblique muscles.

MIXED FORMS OF TRACHOMA AND SPRING CATARRH.

CHARLES H. MAY, M.D., New York, (*Annals of Ophthalmology and Otology*, January, 1896):

Our knowledge of spring catarrh is limited to symptomatology; we know little or nothing concerning etiology or effective treatment. The disease has been described as occurring in three forms: (1) The most frequent, in which both the hypertrophy at the limbus and the papillary changes (granulations) of the palpebral portion of the conjunctiva exist; (2) in which only the circum-corneal hypertrophy is present; and (3) in which the ocular conjunctiva remains normal, but the palpebral presents flat granulations. The disease is most frequently confounded with trachoma, especially when the diagnosis is first made in winter. The clinical history of exacerbation during the summer is always an important factor in this connection; and by many, this recurrence of the subjective symptoms with the advent of warm weather, and freedom during winter, is regarded as pathognomonic.

It should be remembered, however, that even though the subjective symptoms disappear with cool or cold weather, the objective signs persist to a greater or lesser degree in almost every case. The circum-corneal hypertrophy becomes smaller,

the ocular conjunctiva loses its injection and the granulations of the palpebral conjunctiva become less prominent; but, close observation will show that none of these objective signs disappear completely in winter. In some cases there is sufficient change in the palpebral conjunctiva persisting during the winter to warrant the suspicion of trachoma. From a study of six cases the author comes to the following conclusions:

1. There exists a mixed form of trachoma and spring catarrh in which the symptoms of the latter are added during the prevalence of warm weather.

2. The existence of the slightest evidence of pannus or of cicatricial changes in the lids strengthens the diagnosis.

3. The use of the treatment for trachoma (blue-stone or expression) exerts not only a good effect upon the trachoma, but also modifies the course of spring catarrh in a decidedly favorable manner.

4. When such an association of these two diseases is suspected, the treatment of trachoma should be instituted since we are not at the present time aware of any method which will shorten the lengthy duration of spring catarrh.

5. It seems probable that constitutional treatment on the lines now adapted in hay fever will be productive of more success than we have hitherto had with the local treatment of ordinary cases of spring catarrh.

A MISTAKEN DIAGNOSIS OF HYSTERICAL AMBLYOPIA.

HENRY FRIEDENWALD M.D., Baltimore, Md., (*Medical News*, February 15, 1896):

The separation of cases of organic from those of functional disease of the nervous system is usually not difficult, especially when the patients can be kept under observation for some time. In some cases of organic nervous disease, however, the proper signs may be entirely wanting for diagnosis; they may be replaced by those that are more or less characteristic of hysterical affections. In other cases, again, the signs of true organic disease and those of functional disorders are so mingled that the diagnosis becomes a matter of the greatest doubt. Thus Dr. Buzzard (Brain, 1890), described a number of cases in which the diagnosis of hysteria had been made, and in time

the true nature of the disease was shown to be disseminated sclerosis.

It is useful to call attention to these cases, for they teach one to be very careful in diagnosis, and especially to go slowly before designating a case as "hysterical." The most careful examination will sometimes not save us from error. In the case which will be reported below, this error was of the most serious nature.

Before describing the case, it may not be out of place to mention that hysterical affections are sometimes met with in ophthalmic practice. The most common are functional disturbances of vision, without any ophthalmoscopic alterations. Central or peripheral vision may be affected. The fields of vision for the several colors and for white are usually altered. The case which is to be presented in this paper is one in which the diagnosis of "hysterical amblyopia" was made.

Mrs. A., aged 40, consulted me May 23, 1892, complaining that her vision had been dimmed for the past three months. The dimness was most noticeable during the day, and varied greatly. She had also had severe headaches. Her menopause had suddenly come on almost one year previously. Her family history was good. No ophthalmoscopic changes could be discovered. The papillæ were normal, excepting, perhaps, a slight pallor of the macular halves. V. R. E. $^{8}/_{XXIV}$; V. L. E. $^{4}/_{LX}$. The field of vision of the right eye was somewhat restricted in its outer and lower portions, but this was rather indefinite; there appeared to be indefinite central scotomata in both fields. A thorough physical examination did not reveal any symptoms of organic disease, the only exception being a very low specific gravity of the urine (varying between 1010 and 1003). The patient's general appearance and manners strongly suggested a hysterical condition.

The diagnosis of *retro-bulbar optic neuritis* was made. It was believed to have some connection with her menopause. She was treated with the red iodide of mercury, then with jaborandi, and later with mercurial inunctions and iodide of potassium. But her condition did not improve; for some time the vision of the right eye remained the same, while that of the left eye gradually diminished. August 21, V. R. E. $^{8}/_{XXIV}$; V. L. E. could not count fingers, unless very close, and then

with greatest difficulty. At this time there was a large defect in the outer lower portion of the left field of vision.

At this time a consultation was held with Dr. X., a well-known specialist in diseases of the nervous system. He was unable to find any signs of organic nervous disease.

The patient was then sent to Dr. Y. an eminent oculist of New York, for it was evident that the diagnosis of retro-bulbar neuritis was at least very doubtful. In that case we should have found definite ophthalmoscopic changes after such a length of time, and yet there were none. The diagnosis had, therefore, been changed to *hysterical amblyopia*.

Prof. Y.'s answer stated that he considered the affection "purely nervous." "There is an indication of sector-like temporal pallor, as in central scotoma." But he could find "no central scotoma, not even for colors. Her field is irregular; in the right, the outer lower quadrant is absent; in the left, the lower half; then again, she saw the hand in the lower half. V. R. E. at first $^{20}/_{L}$, then with weakest glasses $^{20}/_{XXX}$. Reads No. 2 Jaeger and should read No. 1, commensurate with V, for distance. The whole disease is a form of neurasthenia, and I am sure she will recover."

The great variations which had previously been noted by me, both in the fields of vision and in central vision, as well as those mentioned by Dr. Y., strengthened me in the belief that the diagnosis, concerning which we were all of the opinion, was correct. But treatment with this view, especially suggestive treatment, was without the slightest effect. Early in October, therefore, it was deemed wise to again have her undergo a thorough examination of the nervous system, and Dr. Z., a distinguished professor of Psychiatry was called upon. He likewise saw the patient a number of times, and concluded that the affection was of a purely functional character. Treatment with ergot, and later with tonics, did not improve her condition. She became somewhat dull, her memory began to fail, and the vision of both eyes gradually diminished. November 20, V. R. E. $^{8}/_{LX}$, V. L. E. could not count fingers. Still there was no ophthalmoscopic change.

During the latter part of December, as I was afterward informed, her gait became reeling, her limbs became weak, and her mental condition became much worse; she slept a great deal, her memory was very poor, and she spoke very

little. At the same time her headaches had ceased. January 1, 1893, she lost control of the bladder, and became too weak to remain out of bed. Her condition gradually became worse, and on January 13 she died with symptoms of cerebral edema.

In the absence of a post-mortem examination, it is impossible to decide as to the cause of her complaints and of her death. But it was evident that the diagnosis of hysterical affection which was made by me, and with which several eminent physicians agreed, was a mistaken one.

There was certainly some organic cerebral affection which ran its course without involving any peripheral sensory or motor nerve, excepting the optic nerves, and produced no symptoms but diabetes insipidus, and toward the end, loss of mental power.

CONGENITAL NIGHTBLINDNESS.

An interesting account of this rare but important condition comes from the clinic of Professor Fuchs. One set of cases comprises a grandfather who had two night blind sons and three night blind grandsons. Of these five cases, four suffered from myopia, the correction of which gave good vision; one is noted as being emmetropic in one eye, and slightly hypermetropic in the other. For the most part the fundi are noted as free from retinitis pigmentosa and the vessels normal. Only in two is the retina observed to be tessellated, In all the cases the minimum light sense, as examined by Förster's photometer is found to be defective. So far as known, there is no history of consanguinity, and in all the condition had remained the same throughout life without any increase.

To these cases there is to be added that of a Jewess. One of her fraternal uncles gradually became blind. In her the night blindness is reported as having been stationary. Ophthalmoscopic examination showed that the retinal arteries are diminished in size, but the fundus otherwise healthy. In the cases tested the light difference sense is noted as normal. This corresponds with Bjerrum's observation. It should also be mentioned that hemeralopia is often present in glaucoma. —*Glasg. M. J.*, 1896, xlv, 78.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

THURSDAY, MARCH 12, 1896.

KERATITIS OCCURRING IN LEPROSY.

This paper was read by MR. KENNETH SCOTT (Cairo). One of the patients was a male Egyptian who had been afflicted with anæsthetic leprosy for many years. Included among the affected parts were most of the muscles supplied by the facial division of the seventh nerve. He could not close the eyes, which were consequently exposed to external irritation. There was diffuse infiltration of the lower portions of both corneæ, with a group of three or four raised papillæ covered by epithelium. Similar papillæ were present in a second case. The author would have regarded the corneal affection as due to exposure only had it not been for the presence of these small groups of raised papillæ.

RECURRENT PARALYSIS OF OCULAR NERVES.

This paper was read by DR. ORMEROD and MR. HOLMES SPICER. Seven cases were narrated, three of which were of the third nerve. The patients had suffered from a periodically recurring one-sided headache, attended with vomitlng and a sense of illness, the attacks varying much in intensity. The slighter ones had passed off after a few hours; the more serious ones had lasted several days, and had been accompanied by sudden and more or less complete paralysis of the corresponding third nerve. In the earlier attacks the paralysis was recovered from, but after several recurrences some of the parts of the third nerve became permanently paralyzed. In one of the cases there was partial atrophy of the corresponding optic nerve. The fourth case had recurrent paralysis of both

third nerves, occurring after a long course of periodic headaches, in which the ultimate condition was one of complete ophthalmoplegia externa of both eyes. The remaining cases were of paralysis of the sixth nerve, in one of which the seventh nerve was also involved and in the other the third was partly involved. The opinion was expressed that the term "migraine" which was commonly applied to these cases was an unfortunate one; there was no history of the other migraine phenomena in the published cases, such as hemianopsia or scotomata or visual spectra; moreover, the motor character of the affection and the persistence of the impairment of movement pointed to a definite focal lesion at the base of the brain, an opinion which was supported by the results of post-mortem examination.

THE PRESIDENT thought the authors were to be thanked for having put all these cases together so that the present position of our knowledge as to these cases might be rightly estimated. The subject was still unexhausted.

MR. GRIMSDALE had shown a case of a boy just recovering from the sixth attack, which resembled many of the cases mentioned by the authors. The attacks in this patient always came on in cold weather, and were associated with tenderness on pressure of the globe.

DR. ORMEROD had reported to the Society some years ago some cases of localized unilateral paroxysmal headache, followed by œdema or ecchymosis of the lid. He mentioned them because some of the cases mentioned by the authors were said to have local congestion of the eye during the attacks.

DR. JAMES TAYLOR thought there was room for further investigation of these cases. There was evidence of affection the trunk of the nerve rather than of the nucleus. In the cases which had come under his notice the paralysis had gradually become permanent. He did not think trigeminal neuralgia was at all commonly associated with the third nerve paralysis. There was no anæsthesia in most of these cases, such as would exist if the fifth nerve were involved.

DR. COLMAN referred to a case of this kind he had recently observed in which there was rapid flapping of the eyelid up and down at the beginning of the attack, which he regarded as the representation of a motor convulsion. He did not agree with Dr. Taylor that the symptoms pointed to an affec-

tion of the trunk of the third nerve, as in some of the recorded cases there had been no paralysis of the pupil of the iris. Other cranial nerves were always implicated. He thought an extensive tract of grey matter, including the nuclei of these nerves, was the seat of the lesion. He would not group these cases under the heading migraine, as in none of the 30 cases were any of the visual phenomena present associated with that condition.

MR. PRIESTLEY SMITH had been accustomed to regard these cases as due to a general diathetic condition, like ordinary neuralgia or sciatica, rather than to a focal lesion. He had had one case which was a therapeutic success: it was in a young man who had had skilled treatment for some time without benefit. He had put him on an elimination course of free hot water drinking; his headache had been much diminished' and he had no recurrence of paralysis.

MR. ERNEST CLARKE had cured one case of this kind by correcting an error of refraction in the affected eye.

DR. HILL GRIFFITH had seen painful subcutaneous nodules mentioned in cases of fifth nerve neuralgia. He asked if others had met with them, as he had looked for them unsuccessfully.

MR. POWER thought that worms might be a possible cause of this recurring paralysis.

REFLEX AMBLYOPIA DUE TO PREGNANCY.

This case was narrated by MR. LAWFORD KNAGGS. The patient at the of 32 went blind in the left eye during a pregnancy. When first seen that eye diverged, had no perception of light, and showed atrophy of the optic nerve. There had been four children since; at the age of 40, being four months pregnant, the fundus of the right appeared normal; there was rapid failure of vision from $^{6}/_{XII}$ to less than finger vision, loss of color vision, and concentric contraction of the visual fields. Premature labor was induced, and six months later vision had again become $^{5}/_{VI}$, and the field was restored to the normal except for the obliteration of the right inferior quadrant; color vision was perfect, and the appearance of the optic disc suggested partial atrophy. A year later the patient became pregnant again; there was again loss of sight, with contraction of

the field, the color vision being unaffected. Abortion was again procured. Vision was again restored to $^{6}/_{VI}$, the field regained its former size, except that the right upper quadrant was lost. The prognosis of this form of amblyopia was very serious; it was probably produced by a deficient blood supply resulting from vasomotor constriction of the vessels of the chorio-capillaris. If there was loss of visual acuity with progressive contraction of the visual fields the pregnancy should be terminated in order to avoid the risk of permanent blind ness.

DR. JAMES TAYLOR thought that the title of the paper ought not to pass without discussion. The condition of the visual fields was not like a functional one, and he thought it was going too far to label the case "reflex amblyopia" when there was evidence of grave organic change.

MR. PRIESTLEY SMITH thought it possible that local conditions of the generative organs might set up a temporary spasm of the retinal vessels which, if prolonged, would result in all the signs of blocking of the retinal artery. In Mr. Knagg's case the condition was due to a vascular lesion, as the scotoma started from the optic disc.

MR. JOHNSON TAYLOR thought the case was probably one of atrophy of the optic nerves coming on at different times in the two eyes.

THE PRESIDENT thought it possible that the affection was chiasmal, first affecting one optic nerve at its emergence from the chiasma, then later on traveling back and taking part of the remaining fibres. The variations in the size of the field might be taken to be reflex.

CARD SPECIMENS.

MR. LAWS, Case of Retinitis Circinata. MR. DOYNE (1) Case of Aneurysms of Retinal Vessels; (2) Ossification of Choroid and Calcification of Lens. MR. ROCKLIFFE, Sarcoma of Orbit. MR. RIDLEY, Glaucoma Following Cyclitis. MR. POULETT WELLS, Transverse Films of Both Corneæ. MR. GRIMSDALE, Recurrent Paralysis of Third Nerve. MR. ERNEST CLARKE, (1) Detachment of Retina; (2) Sarcoma of Choroid. MR. STEPHENSON, Unusual Arrangement of Retinal Arteries. —*British Medical Journal.*

ADDITIONAL PAPERS TO BE READ AT THE ATLANTA MEETING OF THE OPHTHALMOLOGICAL SECTION OF THE AMERICAN MEDICAL ASSOCIATION.

LUCIEN HOWE, Chairman. FRANK ALLPORT, Secretary.

[SEE JANUARY NUMBER.]

Address of Chairman—Lucien Howe.

Report of Special Committee on "Detachment of the Retina, Its Etiology and Treatment."

Report of Chairman, R. E. Randolph — "Histological Changes in Retinal Detachment."

Dudley S. Reynolds—"The Nomenclature of Conjunctivitis."

F. C. Hotz—"A Case of Ectropion of the Upper and Lower Eye-Lids."

Louis J. Lautenbach — "Gonorrhœal Conjunctivitis, Its Treatment."

P. D. Kayser—"Grafting in Blepharoplastics."

H. Burt Ellis—"Atrophy of the Optic Nerve Probably Due to Quinine."

B. Alexander Randall—"The Differential Diagnosis Between Simple Glaucoma and Optic Nerve Atrophy."

R. F. LeMond—"The Relationship Between Diseases of the Eye and Brain."

O. J. Short—"Treatment of Optic Nerve Atrophy by Mercurial Inunctions in Conjunction with the Hot Baths of the Hot Springs of Arkansas.

G. C. Savage—"Some Interesting Points Pertaining to Refraction."

Herbert Harlan—"A Contribution to the Question of the Removal of the Lens in High Myopia."

Herbert Harlan and Hiram Woods—"Results of an Examination of the Vision of the Children of the Public Schools of Baltimore."

H. Gradle—"Slight Chorio-Retinal Lesions as a Cause of Asthenopia and Reduced Sight."

C. M. Hobby—"The Co-Ordination and Inco-Ordination of the Eye Muscles."

C. P. Pinckard—"An Ophthalmometric Puzzle."

J. Elliott Colburn—"A Case of Intra-Sclerotic Cyst, and a Case of Cystic Tumor of the Orbit."

Geo. F. Fiske—"Report of Intra-Ocular Malignant Tumors."

S. C. Ayres—"A Case of Chloroma."

A. R. Baker—"Dermoid Tumors of the Cornea."

Arthur G. Hobbs—"The Application of the Galvano-Cautery in Pterygium Operations."

C. D. Westcott—"Keloid of the Cornea."

Adeline E. Portman—"Idiopathic Choroiditis."

Hiram Woods—"Report of Some Cases of Choroiditis in Young Adults."

H. Moulton—"Keratitis Interstitialis Annularis."

H. Burt Ellis—"Bilateral Exophthalmus."

J. Herbert Claiborne—"Experiments Upon Rabbits, Made With a View to Establish a Stump for the Better Fitting of Artificial Eyes."

H. B. Young—"A Further Clinical Note on the Use of Pyoktanin."

THE room for holding the meeting of the Ophthalmological Section of the American Medical Association, at Atlanta, will be at the "ARAGON" Hotel. Ophthalmologists will do well to engage rooms at this Hotel.

FRANK ALLPORT, Secretary.

BOOKS AND PAMPHLETS.

METHODICAL EXAMINATION OF THE EYE. Being Part I of a Guide to the Practice of Ophthalmology for Students and Practitioners. By WILLIAM LANG, F.R.C.S., Eng., Surgeon to the Royal London Ophthalmic Hospital, Moorfields; Surgeon to and Lecturer on Ophthalmology at the Middlesex Hospital. Illustrated with 15 Original Photo-Engravings. 96 pages. London and New York: Longmans, Green & Co. 1895.

In this little book the author teaches the Student to examine each case in a routine manner. The examination is divided into three stages. In the first, the ocular appendages

and anterior parts of the eye are investigated; in the second, the vision and refraction are ascertained; and in the third, the media and fundus oculi are examined with the ophthalmoscope. Mr. Lang is an ophthalmic surgeon and teacher of great ability and in this the first part of a Guide to the Practice of Ophthalmology the student will find many practical points and valuable suggestions which have been gleaned by the author from a ripe experience. JENNINGS.

RESEARCHES INTO THE ANATOMY AND PATHOLOGY OF THE EYE. By E. TREACHER COLLINS, F.R.C.S. With 10 Plates and 28 Figures in the Text. London: H. K. Lewis. 136 Gower Street. 1896.

Whoever has had an opportunity to get acquainted with the many additions to our knowledge of the anatomy and pathology of the eye, made by Mr. E. Treacher Collins, knows what excellent use he has made of the curatorship of the museum of the Royal London Ophthalmic Hospital, which position he held for six years and in which it seems no easy matter to replace him. The book now published contains articles formerly published by him and new additions full of important thoughts and experiences, and it can not fail to arouse great interest. It should be studied by every ophthalmologist. The make-up and illustrations are very commendable.

NEW TRUTHS IN OPHTHALMOLOGY, as developed by G. C. SAVAGE. 58 Illustrations. 3d Edition. Published by the Author, Nashville, Tenn. Price, $2.00.

In this new edition we find that Dr. Savage has added his articles published since the first edition and thus he has not only considerably enlarged the book, but gives, so to speak, a history of the growth and vicissitudes of his "new truths." Surely, he is deeply convinced of the correctness of his ideas and expresses them emphatically. We gladly recommend the purchase and study of this interesting volume.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By E. J. HOUSTON, Ph.D., and A. E. KENNELLY, Sc.D. New York: The Wm. Johnston Co. 1896.

This is a most excellent little manual. It gives in a short

and perspicuous manner a mass of knowledge which, it is certain, every one applying electricity to the treatment of disease should know. It is profusely illustrated and can not fail to attract.

DON'TS FOR CONSUMPTIVES. By CH. W. INGRAHAM, M.D., Binghampton, N. J. 1896.

We confess to an abhorrence of the title, of which the words given above are only in infinitesimal part. Yet, this manual contains much that is of usefulness and interest to consumptives and their families, and perhaps, their physician. As a book for the general public we can thoroughly endorse its hygienic teachings. ALT.

PAMPHLETS.

"Report of the Ophthalmic Hospital of Cincinnati."

"Is There a Rampoldi's Sign." By C. A. Wood, M.D.

"The Eye Symptoms of Intracranial Tumors. By W. F. Norris, M.D.

"Mixed Forms of Trachoma and Spring Cataract." By Ch. H. May, M.D.

"The After-Treatment of Normal Cataract Extraction." By C. A. Wood, M.D.

"Color Measurement and Its Application in Medicine and Arts." By C. A. Wood, M.D.

'Influence of Affections of the Upper Air-Tract Upon the Ear." By H. A. Alderton, M.D.

"A Preliminary Report of a Perimeter Based on a New Principle." By Jas. E. Willetts, M.D.

"The Terminal Loops of the Cones and Rods of the Human Retina," with photomicropraphs. W. F. Norris, M.D.

"The Blind of Kentucky, Based on a Study of 175 Pupils of the Kentucky Institute for the Education of the Blind." By J. M. Ray, M.D.

"Transactions of the Ophthalmological Society of the United Kingdom." Session 1894-1895. Vol. XV. J. and A. Churchill, London. 1895.

OBITUARY.

PROFESSOR DR. RUDOLF SCHIRMER.

Professor Dr. Rudolf Schirmer (Geheimer Medicinalrath) at Greifswald, whose death we mourn, belonged completely to the Pommerian University. There he was born on March 10, 1831; there he studied first at the Gymnasium, and then medicine at the Pommeranian High School from 1852. In 1856 he graduated, his thesis being a physiological examination of the sense of taste. The following year he absolved the State's examination, after which he took the usual journey for studying in Goettingen, Berlin, Wien and Paris. His longest stay was made in Berlin, where he became acquainted with von Graefe. This acquaintance gave the decisive direction to Schirmer's life-labors.

In Greifswald he succeeded in having the teaching of ophthalmology introduced as a separate discipline. He was appointed, in 1860, the first teacher of ophthalmology in Greifswald. In 1867 an extraordinary professorship was created for him, which in 1873, during the general reform of the ophthalmological teaching in the Prussian Universities was made an ordinary one. To this professorship is now attached the directorship of the University Clinic for eye diseases, which was founded by Schirmer, and in which he taught, twelve hours a week, as a most zealous teacher.

Among his scientific productions we may mention his two larger works, one "On the Affections of the Refraction and Accommodation," the other "On the Diseases of the Lachrymal Organs." He published a number of other smaller papers.

Schirmer had charge of the Greifswald Eye Clinic until the fall of 1893; then he retired. His son, Otto Schirmer, is his successor as extraordinary professor and director of the clinic.—*Hirschberg's Centralblatt.*

Dr. Carl Hess has been appointed to a professorship at Leipzig.

Dr. G. Berry has been elected to fill Dr. Argyll Robertson's place at the Edinburgh University.

PLATES TO DR. ALT'S PAPER.—Pages 129–133.

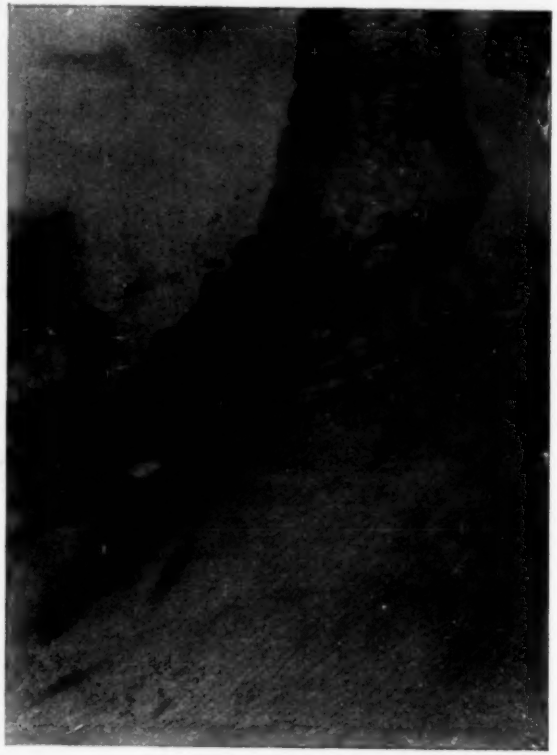


Fig. 3.

Fig. 2.

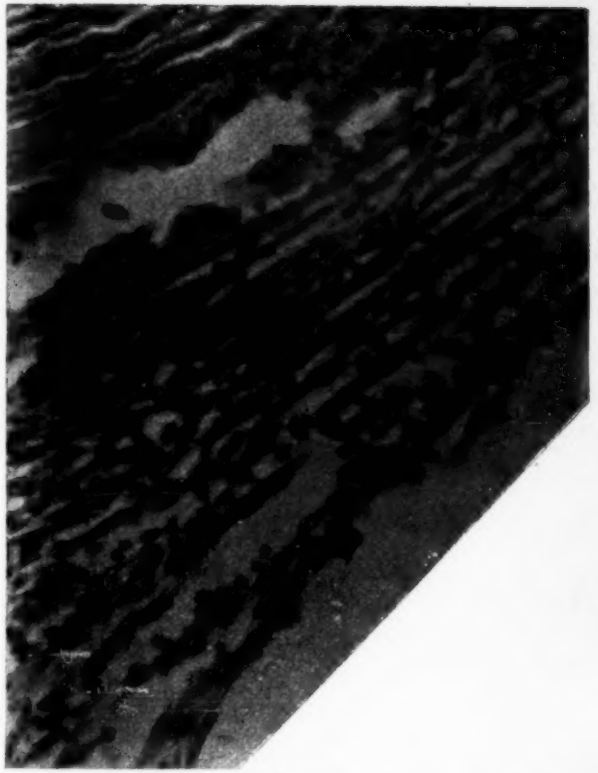


Fig. 1.

Fig. 6.

Fig. 5.

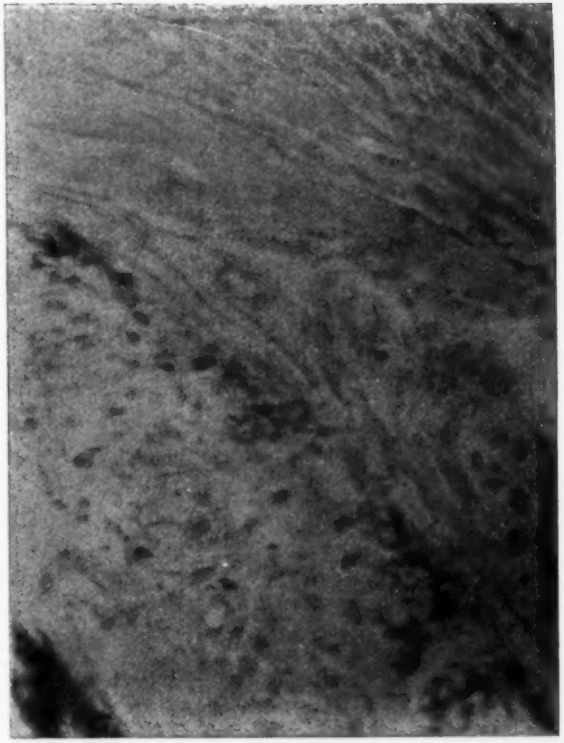



Fig. 4.